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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/920,628	08/03/2001	Takahito Nakazawa	04329.2619	6946

7590 12/19/2002
Finnegan, Henderson, Farabow,
Garrett & Dunner, L.L.P.
1300 I Street, N.W.
Washington, DC 20005-3315

EXAMINER

ZARNEKE, DAVID A

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 12/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/920,628

Applicant(s)

NAKAZAWA ET AL.

Examiner

David A. Zarneke

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 13-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 13-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 13-16 have been considered but are moot in view of the new ground(s) of rejection.

Insertion of the limitation that the pins do not pierce the adhesive tape required the new grounds of rejection.

Regarding claims 15 and 16, the references were attacked separately as opposed to addressing the combination of references. Satoh, Ohuchi and Riding were relied upon to teach the limitations of claims 15 and 16, namely the separating of a wafer into individual dice, in combination with the chip peeling teachings of Matsui,.

In the rejection below, these 3 references are used in a similar manner. They are used to teach the separating steps of claims 15 and 16 in combination with the chip peeling techniques of Kobayashi. Satoh, Ohuchi and Riding are not relied upon to teach the entire invention, only the specific limitations of claims 15 and 16.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 13 and 14 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Kobayashi, US Patent 5,351,872.

Kobayashi teaches a die bonding apparatus comprising:

adhering chips (2) diced from a wafer onto the adhesive side of a tape (3);

repeating the steps of peeling the chips off the tape comprising the steps:

thrusting the chip using pins (31) from the back side of the tape with the tape between the pins and the chip (Figure 3), and keeping the pins at a peak position such that the chips can be peeled off the tape, wherein the pins do not pierce the tape (Figure 3);

descending a collet (12) from the adhesive side of the tape to contact and suck the chip and peel it off the tape; and

picking up the chip by ascending the collet.

Regarding claim 14, Kobayashi teaches the use of a position camera (29).

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi, US Patent 5,351,872 as applied to claim 13 above, and further in view

of Satoh, US Patent 6,338,980, or Ohuchi, 6,107,164, or Riding et al., US Patent 6,083,811.

Regarding claim 15, Kobayashi, relied upon as taught above, fails to teach forming a half cut groove into the active face of the wafer without fully penetrating through the wafer along a dicing line or a chip separation line, and then grinding the back side of the wafer to form separate chips.

Satoh, Ohuchi and Rising all teach the forming of grooves into the active surface of a wafer and then grinding the back side of the wafer to form separate chips (Abstract).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the inventions of Satoh, Ohuchi and Rising in the invention of Kobayashi because Satoh teaches that this method is cheaper and more productive while preventing the occurrence of fractures in the chips (3, 17+); Ohuchi teaches that warpage is reduced (4, 20+); and Riding teaches that chip outs, cracking and ragged chip edges are reduced (1, 26+).

With respect to claim 16, it would have been obvious to one ordinary skill in the art at the time of the invention to optimize the speed the pins move so as to control damage done to the chip (MPEP 2144.05(b)). One of ordinary skill in the art at the time of the invention would know that, especially with thin chips, it is important to treat the chips carefully so as to prevent damage being done to the chip. With this in mind, the speed that the pins moved at would be an important consideration of one of ordinary

• skill in the art so as to limit any damage done to the chips when the pins contact and move the chips.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Zarneke whose telephone number is (703)-305-3926. The examiner can normally be reached on M-Th (7:30-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (703)-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703)-


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• 308-7722 for regular communications and (703)-308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-0956.


David A. Zarneke
December 10, 2002

 12-13-02
ALBERT W. PALADINI
PRIMARY EXAMINER